ILS IN ACTION: FIRST GEAR

Prerequisites: Phase 2 Intro

After making this picture, Calise said she imagined the guy in the fedora saying, "This story's a real juicer, see!"

Anyway, I've been so excited for this post, because the way intelligence applies to First Gear possessions is so cool!

I expect most of us aren't used to thinking of possessions as a form of intelligence, but like the Intro pointed out, they do help us be better able to know and do whatever may be best, in any situation we're in. In a way, possessions magnify our own deeper, personal layers of intelligence. They're the shallowest, least personal kind of smart, so that's why they're the first and smallest gear.

When we have useful possessions, whether in the form of objects, friends, influence, books, internet access, good teachers, or anything, it helps us better improve and exercise all our Second Gear knowledge and skills, which in turn help us reach deeper. And when we lack possessions, that's First Gear blockage, which gets in the way of improving and exercising all our deeper gears.

Our current culture puts a huge premium on possessions, yet not as a beneficial tool to grow and to help others, but rather as a source of happiness and security in and of themselves. This is a waste, pressuring people to focus on the First Gear first, which makes us miss out on so much of the ability, safety, and joy of all the lower gears! Yet even when we *try* to focus on our deeper gears, it's just hard, sometimes almost impossible, due to all the daily demands our culture places on our First Gear.

It's totally expectable that a not-so-healthy culture, hanging out in LLs 2-3, would focus most on the most obvious gear, the weakest and least effective form of human ability. But this makes it hard on those of us who *want* to grow, because First Gear demands constantly get in our way.

But don't worry! As is usually the case, the biggest part of solving any problem is slowing down to get a clearer understanding of what the problem itself is. So let's start digging into exactly how the First Gear turns, and see how understanding it makes it easier for us to use it, rather than feel used by it.

As with all six gears, the First Gear follows the natural step-by-step progression illustrated by the Intelligence Levels. But how do ILs manifest in something as external as possessions? In two main ways: on a personal scale, and on a world scale.

On a personal scale, First Gear ILs show really neat quanta in how we possess things, what we can do with them, and what they do for us. First Gear ILs aren't about our knowledge of how to handle possessions (that'd be Second Gear), but rather about the nature of the possessions themselves. A person might have zillions of dollars, tons of friends, and brilliant understanding of how to use it all, but if all that vast quantity of possessions is still IL 1, then it's probably not going to last

very long.

This is a cool topic, getting down to the roots of economics, debt, productivity, investment, and all kinds of cool and exciting things...and that's why we're not going to be tackling it yet! It's cool stuff, but it's complicated, so it's not as useful for us until we cover a lot of basics first.

Instead, let's first look at the world-scale applications of First Gear ILs rather than personal applications. As we understand how First Gear ILs work on our whole culture instead of on us as individuals, we'll be much better equipped to do more with what we currently have, in the culture as it currently is.

So many of you guys have such awesome ideas, but you often feel like they're impractical. I imagine they're a lot more practical than you might have been led to believe. As we understand how First Gear ILs work in our culture as a whole, as we understand the problems that cause us to feel like our dreams aren't practical and like we can't keep up with daily life, then it becomes so much easier for us to find exciting solutions!

Culture Levels and Technology Levels

Nerd trivia! Who originated and popularized the term "Tech Levels," or TLs for short?

Answer: I'm not entirely sure. But probably the safest bet would be Marc Miller's "Traveller," an immersive world for tabletop role-playing games started in 1977. In "Traveller," Tech Levels are used as an abstract way to describe different kinds of science-fictiony technology for the sake of the game.

Why does that matter?

Well in 1980, another geeky company called Steve Jackson Games got started, and soon begat the best role-playing system of all time (okay, maybe): GURPS. It's an acronym, and also sounds kinda gross. But since GURPS set out to be a Generic, Universal Role-Playing System, adapting to all genres, stories, and crossovers, it needed clear rules about how to handle different story settings. And so GURPS too used the term Tech Levels, to separate swords and spells from rockets and lasers, and help them play nice together.

But unlike "Traveller," which focused mostly on the speculative sci-fi future, GURPS had to cover all eras in equal detail. I love how much detail it goes into! And as a result of all this detail, GURPS started inadvertently bringing out neat patterns in history, which might otherwise have been missed. In deciding which Tech Level meant what, the madmen at Steve Jackson Games stumbled onto quanta in how history really progressed. Like stepping back and seeing an image that you couldn't notice up close, this zoomed-out approach to all history revealed cyclical steps of real-life progress. In pursuit of clearer rules for a game, they found the world-scale form of First Gear ILs.

Yeah, but they never knew what they'd found. Even today, the newest versions of GURPS still seem unaware of just how observant their patterns are, coming remarkably close to the way Intelligence Levels have actually manifested on the First Gear worldwide.

I tell you all that, so that now I can happily steal the term "Technology Levels." It's a good term, nice and simple, and it *might* have inspired the names "Life Levels" and "Intelligence Levels," as a kind of homage. But now let's leave the cool patterns of insightful games behind, and alter the meaning of Tech Levels to instead describe how ILs show up through the quanta of history.

History is full of game-changing breakthroughs like the printing press, steam engine, or electricity. New discoveries are made every day, yet it seems that over time, all those little discoveries end up building up to massive breakthroughs, which affect all previous discoveries and change the rules of everything we know.

This gradual buildup, bursting out into new breakthroughs, is classically quantum. Like a wave on the beach, the water builds up more and more until it finally topples over all at once. Like nearly all quanta in nature, the quantum leaps of historical breakthroughs aren't simple straight lines, where one moment there were no guns and then boom! suddenly everyone's shooting. It's the rounded-off staircase instead, where each new step is a whole different world from everything before, and yet the change isn't as sharp as we might first expect.

When might the next world-changing breakthrough hit? And what might it even be? If no one saw microchips coming, if everyone in the 50s thought computers would forever be enormous, then what else might we not see coming? Just as we chuckle at 19th century science fiction that imagines wooden spaceships and tophat-wearing astronauts, how might our

current views of the future be failing to take into account world-changing breakthroughs we don't see coming?

This is where Intelligence Levels come in! It seems astounding at first, but all of history's quantized buildup-then-breakthrough cycles have perfectly mirrored IL progression. Yet this makes sense in retrospect: If Intelligence Levels describe the natural quanta of how intelligence itself evolves, then why wouldn't the overall intelligence of a culture follow the same progression? Cultures are just large groups of people, and if even animals and AI seem to follow the steps of the ILs, then why not cultures?

I use the term "Culture Level" to describe the broad, overall IL of any culture. This takes into account a lot more than technology, and may differ dramatically between individual subcultures. Culture Levels are something we're going to go into more later (yeah, so now we have ILs, LLs, TLs, and CLs :P It'll get a lot easier as we use each ;)), but first we have to start with the comparatively simpler topic of Tech Levels. As we understand why our current culture is the way it is, it becomes much easier to get around its limitations and grow freer to exercise all our gears!

Measuring History

There have been numerous proposed ways of measuring technological growth, many of which focus on the future more than the past, and most of which are very, very zoomed-out. One neat example is the Kardashev Scale, which ranks civilizations based on their energy use. Type I uses all the resources of their planet (so yeah, we're not even that yet), Type II uses all the resources of its star, while Type III uses all the resources of its whole galaxy. This scale is fun for speculation, but it's not of much use to us, and it doesn't really tell us much. Its divisions are closer to arbitrary, manmade distinctions rather than any observed pattern in nature.

The zoomed-out quality of scales like this also fails to help us spot inconsistencies. For example, by this scale, I expect the Star Wars galaxy would be close to a Type III civilization, right? Using all or nearly all the resources of its galaxy. And yet, as an unrealistic space opera, Star Wars is in no way a consistent representation of what such a civilization would have to be like. These sorts of overly zoomed-out scales help us categorize things into manmade boxes, but they don't really help us understand anything.

By contrast, this is one thing that first really impressed me about the game GURPS. When it comes to projecting future technology, GURPS acknowledges that their fanciful guesses are as good as anyone's, but when it comes to the past, GURPS digs in deep. Simply for ease of gameplay, GURPS divided the past into Tech Levels, and then divided those Tech Levels into smaller categories. For example, the game might list Tech Levels of medicine alone, showing players what sort of medicine should be available to their characters in different settings. Separating medicine from the dizzying variety of all other kinds of technology allows the historical progression of medicine to become much clearer. And so, real-life patterns start to be noticeable.

And now, armed with the natural progression of ILs, what do we see when we look back at history? Well first off, we see a mess! So much information, some of it contradictory, and most of it written by whoever won at the time. But as we start to untangle this ultimate knot of humanity, thread by thread, the patterns fall out in front of us.

Naturally, history is an immense subject, and it's full of varying interpretations. So for this post, we're going to start with the basics of Tech Levels, the natural quanta of IL growth in history, and then end with what I hope will be one really useful application for you! In later posts, we'll go into more detail about all sorts of other useful specifics.

The First 9 Tech Levels

Or 8, if we're not counting TL 0, which is IL 0 applied to cultural development. I say "cultural development" instead of technological advancement, because TLs account for a lot of things that we might not usually consider technological. With each quantum leap of TL, absolutely everything changes, not just typical sciencey-tech-stuff.

For instance, each TL displays a radical change in weapons and warfare, and in transportation, communications, and industry. Alright, those all seem fairly typically "technological." But what about music? Dance? Architecture, clothing, sports, the art of story, and the nature of law, economics, and how to make a living? Every one of those also enjoys a total quantum leap with each Tech Level, in perfect reflection of the way intelligence itself grows through the ILs.

For now, we're going to focus on a broad overview of each TL, with a few examples to illustrate. But in later posts, it will be really helpful to dig in and explore more different aspects of each TL, so we can understand better how to handle our current world.

Tech Level 0 - The Prehistoric Age

By "Prehistoric" I don't mean any particular time period, but rather the fact that no one's really recording anything at TL 0. There is no history, per se. TL 0 might be the classic "Stone Age" trope, or it might be a post-apocalyptic future dark age. Tech Levels aren't so much about time periods, as they are about the natural growth and progression of intelligence on a cultural scale.

And just as IL 0 doesn't plan or even really think, but only reacts, so also TL 0 is pretty much the absence of any kind of intentional technology of any kind. Weapons are improvised at best, but usually biting and kicking will do. There's no writing or industry, though basic oral language and fire might count, preparing for the quantum changeover into TL 1. Government is tribal in the most rudimentary way, based mainly on existing family relationships, and the economy consists of just gathering and hunting. In short, you take what you're given, and don't really make anything more out of it.

Animals live at TL 0; any further progress requires the ability to reliably make more from less, to create wonders out of raw materials, rather than just adapt to the environment as it is. TL 0 is the cultural application of IL 0.

Tech Level 1 - The Defined Age

This is IL 1's Recognition applied on the cultural scale. At IL 1, things are clearly recognizable and defined, and this act of defining things seems to be the overall theme of TL 1 as well. In history, TL 1 is often referred to as the "Bronze Age," like Ancient Egypt or Mesopotamia, but the use of bronze or any kind of metal isn't really a requirement of TL 1. Instead, TL 1 is all about clearly defined and recognizeable uses for everything.

Writing is perhaps the single biggest breakthrough of TL 1, opening the flood gates by providing a lasting way to define things. With writing comes more defined systems of despotic rule (like Pharaohs), more elaborately described systems of worship, and of course, established disciplines like metalworking. Even if most people can't read or write, the mere existence of writing among even only the rulers allows for everything to be ordered, established, defined, and used in much more intentional ways. Just as IL 1 is the beginning of intentional action, TL 1 is the beginning of intentional improvement, constantly establishing and retaining a record of better methods to do everything.

All this establishment of better tools and methods means that at Tech Level 1, Life Level 1 tends to be naturally encouraged. This doesn't mean that there weren't any LL 4+ people back in TL 1; it just means that the atmosphere of a TL 1 society tends to lead people to seek out their own interests, and not much more than that. In the same way, a TL 0 atmosphere can encourage mere LL 0 reaction and savagery, bringing out the monster in anyone who's already in a low enough LL.

Tech Level 2 - The Age of Nations

Of course cities already tend to exist during TL 1, but they're more about people huddling together for mutual security and prosperity. Only at TL 2 does the idea of a polity really take form, the sense of a people united in purpose and not just in circumstance. This is IL 2's mimicry, taking form on a cultural scale.

History often refers to TL 2 as the "Iron Age," but again, any number of alternative TL 2s are possible with or without iron; TL 2 can take different forms in different places, yet it's always the result of a culture evolving from IL 1 to IL 2. Some classic examples are, well, the "classical" era of cultures like Ancient Greece or early Rome.

The invention of consistent law might be the greatest breakthrough of TL 2, triggering all the others. Some cultures developed clear codes of law earlier than others, but in every case, clear and consistent laws ended up binding a people together and producing a whole new leap of technology in every aspect of culture.

As we'd expect, TL 2 is very interpersonally focused. Governments become more moderate, taking more account of the people than the autocrats of TL 1 (although some rulers always did try to hold onto less effective TL 1 methods of governing), resulting in all kinds of limited monarchies and even experimental democracies and republics of numerous forms. Improved methods of animal breeding and road building make transportation easier, binding people together more, and militaries become more structured and orderly. Even music and dance become more group-oriented, and stories give a sense of overarching cultural identity rather than the more localized traditional tales of TL 1.

And all this sense of national identity makes Life Level 2 very easy at TL 2. Again, every individual can and did choose their own LL, but cultures have a huge impact on which LLs are easier to get stuck in.

Tech Level 3 - The Age of Empires

Sure, there were "empires" all the way back in TL 1, like the Assyrian Empire or the Persian Empire, but those tended to be more like vast groups of TL 1 cities held under the thrall of one more powerful TL 1 city, not even a unified nation-polity like at TL 2. At TL 3, everyone and everything becomes powerfully unified (I even sometimes call TL 3 "The Unified Age"), as a culture adopts the self-sufficient competence of IL 3. In our history, the later Roman Empire is a great example of TL 3, as are the medieval European Dark Ages.

The main breakthrough of TL 3 seems to be the practice of collecting and combining all earlier discoveries. All the knowledge of previous TLs, recorded with TL 1's writing and elaborated in TL 2's law, is now collected, compiled, and collated as TL 3 combines everything in one. Like stereotypical medieval tomes, all knowledge is brought together, resulting in vast improvements in every area of life that might never have even been considered before. Law grows more intricate yet more manageable and familiar, as do governments in all their orderly and complex variations of peerage. Weaponry and tactics combine all insights of the past and improve from there, as does industry as better methods of engineering become widespread. Everything is improved: layered roads, watermills, stirrups, even sports and entertainment in the form of complex tournaments and richly embellished literature that builds upon existing legends with unprecedented speed. Everything is brought together, unified, and then all the best parts are taken and improved upon.

This intricately ordered unity makes Life Level 3 very appealing; even today, we tend to unknowingly associate the strengths of LL 3 with idealized stories of noble knights and shining castles. A lot of fantasy fiction is simply full of LL 3 attitudes and characters. But even in reality, TL 3 feudalism and LL 3 honor did go hand in hand, as TL 3 unity encouraged an LL 3 mindset overall, while LL 3 honor made all the complexity of TL 3 run much more reliably.

I hope all this stuff is interesting and cool, and yet it's all for helping us better understand our TL 7-8 culture today! As we see where our current status quo came from, we see what we can do with it, rather than feeling forced to accept a remarkably temporary and changing version of the world.

Tech Level 4 - The Age of Discovery

In European history, we tend to think of TL 4 as the "Renaissance," meaning rebirth. This is due in part to the fact that Europe was emerging from a dark age, but then, dark ages are IL 3's specialty. All the needless stagnation and regression of the medieval era are simply symptoms of IL 3's rigidity. Of course, not every TL 3 culture suffers from the same kinds of stagnation, just as two LL 3 people can suffer from vastly different kinds of rigidity, and Europe's TL 3 stagnation was particularly rough. TL 3 still moved so much faster than TL 1 or 2, covering so much more progress in such a shorter period of time, but in comparison with later TLs it can seem like a truly cold, hopeless, brutal time.

In contrast to that, the rising light of TL 4 can seem like nothing short of a rebirth. Just as Life Level 4 is the first of the really healthy LLs, so also Tech Level 4 is the first of the truly forward-facing TLs, aggressively seeking knowledge and progress instead of just trying to hold onto things as they are.

Like all TLs, Tech Level 4 is a vast and varied time, covering so many changes, ideas, and inventions. This is why we sometimes refer to tenths of TLs, like TL 8.2 for instance. TL 4.0 is very different from TL 4.9! Even TL 1.0 is remarkably different from TL 1.9, and the difference only increases with each higher TL, since IL growth is exponential. An actual changeover from one TL to another is a huge thing, a dramatic and sweeping change of every part of a culture, but even between those spikes of change, it can be useful to use tenths of TLs to keep track of smaller changes.

And while TL 4 was an explosion of all kinds of invention and genius, the main spark that ignited the whole quantum change seems to be the printing press. No longer did words need to be laboriously copied by hand; now entire books could be efficiently produced and copied, causing ideas to spread with a rapidity that caught everyone off guard. The rigid dogmas of previous TLs were investigated by an unprecedented number of people, rather than being known and preached by only the cultural elite. And so while LL 4 giants of history had always nudged the world toward better times, now in Tech Level 4, Life Level 4 became a cause worth fighting for.

Once again, everything changed, and with a rapidity far beyond that of any previous TL. The rigid peerage of TL 3 evolved into various types of parliaments that better saw to the actual needs of their nations, which were often spread over ever-widening colonial empires. This isn't just a European thing; colonial imperialism in one form or another (some more peaceful

than others) seems to be a staple of TL 4's desire to explore, to expand and discover. Great trading companies adapted economics to the widening world, while gunpowder and complex machines changed age-old notions of how war and peace worked. Music became a matter of theory like never before, as did even the study of religion, which reason worked hard to stake a claim on.

As TL 4 changed faster than any previous TLs ever had, that change became more noticeable to the people living through it. This sharper change caused a sharper divide between people of LL 3 or below, who much preferred the established previous TL 3 in all its forms, against the people who embraced LL 4. Perhaps like never before, in TL 4 Life Levels 3 and 4 clashed heatedly, battling over the change in Tech Level, a change in everything the world would mean and everything it was going to become. Unlike the relatively quiet and peaceful evolution of previous TLs, TL 4 was a battleground between LLs 3 and 4 for nearly its entire duration.

Tech Level 5 - The Industrial Age

Aaand here we hit TL 5, the cultural manifestation of IL 5 on the First Gear. And we haven't talked about IL 5 yet, and we really shouldn't until we cover a ton more prerequisites first. But in short, each IL has a theme of sorts: for IL 0, it's reaction and mere existence, for IL 1 it's defined recognition, and for IL 2 it's mimicry in all its social implications. IL 3's theme is self-sufficient competence, with all the honor and pride that naturally result, while IL 4 is all about breaking past barriers and learning, growing, and discovering outside of all that was previously thought possible. No matter which gear we apply these ILs to, whether it be Fifth Gear Life Levels or Second Gear knowledge and skills, these same themes keep coming up, in different ways for each gear.

Without describing IL 5 at all, its overall theme is one of infinite, endless horizons. Of a whole new world unexpectedly unleashed by IL 4's poking of Pandora's box, which totally changes and in many ways obsoletes everything that came before. So it was with Tech Level 5.

In our history, TL 5 was the Industrial Revolution, and some form of industrialization always seems to be necessary in any version of TL 5, but it certainly doesn't have to be so filthy and wasteful as ours was. In any case, all the invention and inquiry of TL 4 soon starts stumbling upon inventions and notions that result in a total, comprehensive TL change in every part of a culture.

I'm hesitant to say that the steam engine was the biggest breakthrough that caused TL 5, but it really seems to have been. I'd much rather point to something more classy, like Separation of Powers or the scientific approach to law, but even those seem to be fascinating results of the wave started by the little steam engine. Steam power, which had been dabbled with ineffectively in early TLs, was the beginning of harnessing the raw powers of nature; in this case, harnessing heat and pressure.

This resulted in steam powered mills and tremendous increases in production, but more importantly, it resulted in a great change in how people saw their relationship to the world. Before steam, the world seemed to be a vast and humbling place, and we just lived in it. But with the beginning of industrialization, suddenly the whole world and all of nature seemed like resources to be unlocked, if only we could find the keys. This isn't a bad thing, and it certainly doesn't have to be arrogant; it's the transition into becoming drivers rather than passengers. In a real way it's a necessary step in the maturing of intelligence, but as such it requires a mature culture to do it safetly, respectfully, and in balance.

In actual history, our culture wasn't so balanced. While Life Levels had pretty much kept pace with Tech Levels up through TL 3, and while Life Level 4 had struggled for some measure of dominance in TL 4, that's about as far as our culture got. Life Level 5 sputtered and gasped in the early years of TL 5, but got no hold, and instead the culture began falling backward again to LL 3. So now we had all the power of TL 5, steered by the one-sided thinking of LL 3, and as a result the Industrial Revolution got a bit of a bad name. It might make us think of short-sighted abuses like rampant pollution, exploitation of both workers and environment, and an attitude toward machines that separated humanity from the joys of life. In short, it seems like Isengard.

Yet this wasn't the fault of industrialization, but rather of the lower LLs that steered it. This is not how TL 5 had to be, and many LL 4+ people worked hard to make it so much more. The audacious attitude that sought to harness every part of nature led to marvelous discoveries in every aspect of life. In government, the separation of powers allowed for large-scale republics in a way that never before seemed practical; the whole Republic Experiment of the American Founders was the most wonderful hubris, classic IL 5 manifested through culture. Economic theory pushed the barriers of understanding how wealth worked, and rags-to-riches tycoons discovered daring ways to accrue more money and power than any king.

The invention of the novel spread story like never before, communicating ideas of grand complexity beyond that of any nonfictional treatise, and training the general population to consider experiences far outside their own. Even the devising of

organized sports demonstrated the open horizons of TL 5, as tactics usually reserved for military generals were now seamlessly integrated into the thinking of casual players. Newspapers, the telegraph, musical symphonies of astonishing complexity and the developing, exploratory genres of dance, and of course the steam locomotive, all displayed an attitude that nothing was outside humanity's reach. It was everything TL 4's exploration could have wanted, and more.

And yet it was all driven by lower LLs, resulting in one-sided excesses and an ugly cost to an exciting era. Calise and I think this may be part of what makes steampunk so cool: it embraces all the open vistas of TL 5, while imagining a better world where the price wasn't so high in human suffering. All the brashness of brass and the tangibility of well-worn leather, and all the dignified style of nineteenth-century fashion lend an excitement and confidence to the ingenuity of invention. The appeal of mighty steam-powered airships gleaming in the sun, or Captain Nemo's undersea kingdom of free discovery, or even clockwork spacecraft and time machines, all make our hearts sing with the forbidden excitement of IL 5. Steampunk paints a picture of a simpler world where complexity was nontheless encouraged, a world of freer exploration where each individual seemed of more value.

And that yearning is made all the greater, because we've inherited a history that mostly rejected higher LLs, instead mismatching Tech Level 5 with the abuses of LL 3 and below.

And so, less than a century after the American Colonies rose up as a culture and showed what a large-scale LL 4-ish group of people can accomplish against unthinkable odds, less than one century after those early TL 5 triumphs of freedom, their descendants turned on each other in the bloody American Civil War. The causes of that war were complex, and apart from the issues of slavery, federalism, and the cultural clash of North versus South, that whole war was the consequence of IL 3's one-sided thinking, with every point of view seeing only their own. It was the natural result of what happens when LL 3 is given control of what LL 4 invented. There were still such marvelous men and women who tried to raise the world to be better, but as TL 5 went on, the exploitations of the lower LLs began gaining momentum.

Tech Level 6 - The Mechanized Age

On that cheerful note, we take the next quantum change into TL 6. And again, the Tech Level mirrors the IL on a cultural scale, in this case IL 6's theme of infinite, mind-screwing complexity that ends up making so much more sense than anything before. During Tech Level 6, inventions and ideas grow far beyond what's easily deducible or comprehensible, making the world seem almost too big to handle in some ways.

The instigating breakthrough of TL 6 was the harnessing of an even greater power of nature than steam: electricity. And as with steam (and most breakthroughs), electricity had been dabbled with in lots of little ways in earlier TLs, but when it finally matured into an easily useable part of life, it changed everything. It opened the floodgates for a deluge of world-altering inventions, and as with all TLs, it inspired a whole new kind of ideas.

Electricity meant unprecedented convenience, comfort, and capabilities. It enabled the telephone and radio, which tied people and cultures much more tightly together. Cheap electric lighting had a huge effect on productivity, as well as nightlife and entertainment. Cities became cultural hubs like never before, and the majority of the population moved from an agrarian to an urban lifestyle. At the same time, food became more plentiful and varied, and electric refrigeration made it all last longer. Movies and radio shows made people feel united across great distances, bound by commonly beloved characters, singers, and film stars. Everything became more accessible to everyone.

Electric starter motors made automobiles much safer and easier to start, and cars soon became the ubiquitous form of easy, comparatively cheap transportation, bringing people together even more. And while basic versions of flight like gliders and balloons were possible before, the compact size of gasoline engines made airplanes and air travel a reality. Finally at TL 6, even the sky was no longer off limits. Between planes, trains, and automobiles, the world was rapidly growing smaller and more connected.

Of course, by today's standards gasoline engines are polluting and inefficient, but a hundred years ago the internal combustion engine was like steam 2.0. It offered much greater power at a smaller size and with a lot less filth than typical coal-burning steam engines. The modern poor image of gasoline engines is probably due in part to the fact that they're two TLs old; a lower-LL culture always makes new ideas hard to implement.

And since all this TL 6 complexity made the world both more complicated and also smaller at the same time, people began to feel a greater need and also a greater ability to find centralized solutions to life's difficulties. This resulted in a new perception of government. In the past, governments had protected people and brought a sense of stability to life, the economy, and society in general. But now with the capabilities and complexities of TL 6, people started turning to their governments as a centralized way of finding solutions to more and more diverse problems.

Governments became powerful engines of social change, rather than simply instruments of law and order. This resulted in the invention of all kinds of life-improving government programs, but when mixed with not-so-high LLs, it also caused a rise in totalitarianism across the world. The tyrannical Axis powers of World War II were just one extreme example of TL 6 mixed with LL 3 cultures. People saw their governments as being capable of solving so many of life's new problems, but when so much power is approached through the one-sided perspective of LL 3, then oppression and excesses are simply to be expected.

And this has a damaging effect on law. With each new Tech Level, law advances alongside everything else. Or at least it's supposed to. The way laws are made, how they're enforced, even what they focus on and what constitutes a good law or a bad one, all evolves with each new TL. And similar to Life Levels, the Tech Levels of law kept pace with everything else up though TL 4 and into the beginnings of TL 5. But after a little bit of excitement with TL 5 law (the process of the creation of the American Constitution being one example), law quickly slipped back into TL 4 during the Industrial Age. This wasn't very noticeable at first, because TL 4 law is still really awesome, and it was only 1 TL different from everything else at TL 5.

But then as the rest of culture changed into TL 6, the technology of law for the most part continued to fall back, almost in perfect sync with Life Level. During TL 6 in our culture, law quietly and gradually degenerated to a simpler, less dynamic TL 3 form. The full explanation of the TLs of law is a hugely important subject for later posts, but for now the main point is that our culture's understanding of law became more primitive with each passing decade. We actually lost insights and understanding that were simply part of how law worked in TLs 4 and 5. Tech Level 3 law is still pretty nice, though not as reliable or incisively helpful as TL 4 law, and so TL 6 fared fairly well even as law continued to regress.

On a happier note, the nature of employment changed positively during TL 6 along with most of the rest of technology. The way people tend to make a living is different in each TL, as each new quantum offers so much more freedom and opportunity. The explosion of new inventions and new industries in TL 6 created a demand for entirely new skills, which placed a focus on the ability to learn. As great corporations came to dominate commerce, common people could make a life for themselves by being hired and learning to excel in whatever trade or role they could get. Instead of having to settle for the choice between farming or being little more than a human machine in a mill, in TL 6 people were able to really define themselves by a specialized career that reflected their own interests and skills. In our history, employees still weren't always treated very well, but again that's a result of Life Level. The point for now is that, with each new TL, the entire nature of everything it means to make a living goes through a total transformation.

Tech Level 7 - The Electronic Age

See how big the distance is getting between the external TL and the internal LL of our culture? Now we're dealing with the large-scale First Gear application of IL 7, which is as different from IL 4 as IL 4 is from IL 1. More different, actually, since each new IL is exponentially more effective than the previous quantum change. With TL 7 tools in the hands of an LL 2-3 culture, how can we be surprised at how much pain and imbalance there is in the world we're taught to simply accept?

Put simply, the theme of IL 7 is all about our place in the whole cosmos, how we fit and how it all fits together. And as a First Gear version of that, TL 7 is all about the whole world becoming one big community, in a sense. Markets and commodities are globally intertangled like never before, and all the actions and interests of even superpowers are intricately counterbalanced with practically every other nation on the planet. It's possible to traverse the globe in a single day, popular fashions and media sweep across continents and hop easily over oceans, and space travel shows us all how truly we are co-tenants of one isolated world.

The triggering breakthrough that causes all of TL 7 will seem fairly obvious to most people today: the microchip, and its most immediate result, the personal computer. Computers are just stupidly powerful. We may take for granted just how much they do, and how much they've done in our culture for decades. They change how industry and commerce work, due to the immense amounts of information they can process and store in an easily accessed way. Computing superiority is a decisive advantage in any war, hugely magnifying the 3 Cs (command, control, and communication). And in nonviolent wars of economies, information is among the most powerful of weapons.

Computers and microchips allow for sophisticated robotics in manufacturing, forensics, medicine, and numerous other uses. Even our cars depend on computers, and the entire space program relies heavily on them. Computers are in everything, because computers are information and communication.

So Tech Level 7 could aptly be called the computer age, but I prefer "Electronic Age" (which is different from just electricity) because it seems more all-encompassing of the era, even though computers were the instigating breakthrough. From cassette tape players to VCRs, from home thermostats to cordless phones, it seems nearly everything in TL 7 was electronic.

Law, by contrast, continued its decline during TL 7. While it had regressed to TL 3 law during TL 6, during TL 7 it started to sink more and more back into TL 2 methods. Again, this is something I'll go into in more detail later, but it's an important enough problem to bring up now. In no other area of our culture does TL lag so far behind, and law is a very dangerous thing to be primitive about. Our culture never got to see TL 6 law, or TL 7, and got only the quickest taste of even TL 5 law. This makes us all the more excited to explain the TLs of law here on Phase 2, but yeah, it's a bad thing for a culture to be so backward about.

But when it comes to employment, TL 7 is very important to understand, because the nature of making a living at TL 7 is distinctly different from TL 8. And since we're living in the transition between the two TLs, it can be very helpful to understand how the quanta are evolving! So many of you have awesome ideas, but you've been led to believe that you need to follow the less effective methods of TL 7 in order to make your ideas happen. So in order to understand why you don't have to feel constrained by all the limitations TL 7, first we have to talk about TL 7's strengths.

As computers changed how everything worked in early TL 7, the huge corporations of TL 6 started getting challenged and even replaced by smaller, more nimble companies. Suddenly it was possible for little companies to compete with huge corporations, and that competition gave customers a dramatic increase in choices! More choices and competition led to more incentive to produce higher quality goods, which in turn encouraged the birth of more new companies to get in on the action.

And this change in economics from massive corporations to smaller companies had a totally game-changing effect on the common worker. These new companies needed leaders, managers, and specialists of all sorts, which meant that any capable worker could aspire to be promoted higher and higher in their chosen line of work. The new TL 7 model went something like this: You go to school and do as well as you can, so you can get into a prestigious university. The better the college, and the better you do, the better position you can start out at in a career. And once you start your career, then you can work hard to get promoted, climbing the ladder higher and higher! And after all that, you can look forward to a comfortable retirement and plenty of security for your family.

This TL 7 model was like a dream come true, so amazingly freer than what most people could ever expect during TL 6. The idea that anyone, no matter their social class, could work hard during school and get into any career they could reach, and that they could climb as high in that career as they were willing to work for, that idea put so much opportunity into the hands of regular people. The promise of job security was a goal worth striving for, a goal that was suddenly attainable by anyone willing to earn it. While TL 6 had given people pride in their personal career, TL 7 created a world where anyone could choose a career, be educated specifically for it, and rise in it nearly as high as they wanted.

In short, here was the model: Get a good education, get a good job, and work hard at that job to get better and better pay. Those who lived during TL 7 fell in love with this model, and with good reason, and so it was only natural that they would passionately advise their descendants to follow this model with dedicated diligence. Those who lived during TL 7 knew that people who failed to get a good education were severely limited in their career opportunities, and even more limited in their ability to rise to better-paid positions throughout their lives. Lack of education meant economic bondage.

And in TL 7, if you wanted to get something done, you needed a company to do it. Want to sell a product? You'd need a marketing department, distribution, production, quality assurance, etc. You'd need a company. Individuals couldn't do much; you needed to find a company or, in rare cases, start your own and try to make it fly.

Want to make a movie? You needed a studio. Want to act? You needed an agent. Want to write a book? You needed a publishing house. This was just the way things worked in TL 7, and it was worlds better than TL 6! At least in TL 7 you had a chance of getting in, even if it was sometimes terribly hard. But economics have been changing, and the same models aren't as effective as they used to be, and the same limitations aren't as real anymore. As we understand how TL 8 has begun changing everything, we can adapt to this new quantum of culture rather than feel constrained by limits that no longer actually exist.

Tech Level 8 - The Digital Age

We're living in the beginning of Tech Level 8, and have been for a while. It's an exciting time of transition, but it's also been hard due to an ongoing tug-of-war between TL 7 and TL 8. Attitudes of IL 3 and below have been trying remarkably hard to cling desperately to TL 7 mindsets, while IL 4 people have been eager to adapt to the entirely new circumstances of TL 8. This is typical in a way; lower LLs and ILs have always resisted any new Tech Level. But I'm not aware of any time in history where the struggle was this heated, this determined on both sides. The centuries-old battle between LLs 3 and 4 began in earnest during TL 4, and it's only intensified with each passing TL.

TL 8 is also particularly attractive to LL 4+, and especially threatening to LL 3 and below, making this a pivotal time for our

culture. The overall theme of IL 8 is all about the power and potential of each individual in a limitless way. So while LL 3 wants to enforce rigid, simplistic methods of conformity in every part of life, insisting that everyone must live according the same version of outdated TL 7 models, that attitude goes directly against the entire nature of this new and unstoppable Tech Level.

The key instigating breakthrough of TL 8 is the internet. Yay internet! Just as microchips and computers transformed how every part of our culture functioned in TL 7, now the internet has transformed it all in a whole new way. Never before have so many people been so closely and constantly connected, not by a long shot. Never before has so much information been so easily accessible to everyone, and never before has the common person been so capable of creating and accomplishing so much, entirely on their own.

Compare the cost, bulk, and limited content of big TL 7 encyclopedias (though they do look nice on a bookshelf), with the ease, accessibility, and incalculable depth of what we can look up on a pocket-sized phone wherever we are. In TL 7, everything was big; it had to be in order to get anything done. Now, TL 7 things were actually fairly small and nimble compared with lumbering TL 6 corporations and government control, but TL 8 has continued the trend of ease and accesibility in an exponential way.

Unfortunately, much of our culture still has very little TL 8; most music and dance are still solidly TL 7, as are sports, transportation, and most industry. World economics are clinging tenaciously to the TL 7 system, most governments hang back between TLs 7 and 6, and law has been sinking decisively down to TL 2 in most places, and even outright TL 1 law in some areas. This is a recipe for turmoil.

The areas where our culture has surged ahead the most into TL 8 are things most closely centered around computers, like computer games and online information. We're really living in a "computer punk" world.

Punky sidenote, at the request of Calise: This seems to be the nature of all punk, whether it be steampunk, cyberpunk, dieselpunk, or Calise's beloved TL 4 clockpunk. All "punk" genres seem to be when one aspect of society is magnified far above the rest, dominating all other aspects of the world. In a balanced TL, every part of a culture advances, but in a "punk" world some things leap forward while others stay the same. So, steampunk has steam-powered robots, computers, and spacecraft, while most of the rest of society is still classically TL 5. In cyberpunk, cybernetics rule the scene while many social aspects of culture stay the same or regress. A lot of sci-fi is "space punk," with ridiculously fast interstellar travel while most social technology isn't much more advanced than what we know today.

This is a difficulty in speculative fiction: in trying to imagine a realistic future or alternative past, it can be hard to account for all the unexpected changes that affect cultures in so many different ways. For instance, Star Wars shows transportation technology of TL 16-17 (no, not saying hyperdrive is realistic, I'm just saying, the ability to cross a galaxy would require technology reflecting IL 16-17), while most of the rest of its technology is only TL 8 or 9, and sometimes 7 or less. Most sci-fi is like this, focusing on one area of technology (usually transportation) while forgetting nearly everything else. Now Star Wars is still awesome, but yeah, I certainly don't expect the actual distant future to look anything like it!

Yet as we apply the apparent patterns of Intelligence Levels to the First Gear on a cultural scale, it gets exciting to see what should really come next! It helps us see what otherwise unexpected breakthroughs will trigger the next quantum leap of technology, and then the next after that! And how will those breakthroughs affect employment? Diet? Entertainment, advertising, stories, or any other aspect of life? Following the patterns of ILs through each application of technology, like health or medicine or weapons or music, we can trace the advancement of anything through past history, and then on from there!

And by viewing our culture's technology as a First Gear IL, we can check whether our culture is "normal" or not...and it's not. We're quite imbalanced, with a huge emphasis on computers, perhaps because computers have been a fast and effective money-maker. So yeah, computer-punk. Or netpunk? Digipunk?

TL 8 Employment - Niche Collaborations

So while TL 8 would be awesome to describe in more detail later, our culture still hasn't reached it in a lot of areas. But like I mentioned toward the end of TL 7, the nature of employment and making a living has been changing, albeit gradually. This is something I hope will really encourage all of us, showing us that our ideas and pipe-dream hopes might be a lot more practical than we realized.

Remember, under the TL 7 model, you go to school, do as well as you can, get a good job with a good *company* (because companies are everything at TL 7), and then earn a better and better place within that company. That was just the way things worked, and if you didn't follow that model, you'd been severely limited in your life choices and your entire future

financial stability. And while that model certainly still works, it's working less and less effectively.

The immense speed and availability of communication over the internet is making everything in life move more quickly. It made sense in TL 7 to choose a career and stick with it, earning a higher and higher place in your chosen discipline, and even if you sometimes had to change companies, you still kept all your experience in the same overall career. But as TL 8 has been sneaking up on us, more and more people have found themselves unable to survive by trying to stick to just one career, no matter how hard they try. Things just change too fast, and we have to roll with the punches and do the best we can.

A college degree is no longer any sort of guarantee of anything, and while the vast majority of companies do highly value the discipline that a degree demonstrates, they're flooded with college-educated applicants. Universities used to be the holy houses of learning, but now anyone with sufficient drive can learn far more online, far more quickly and without paying TL 7's outdated and gargantuan college fees. Now colleges and universities are still hubs of research and a classroom setting can make it much easier to learn...sometimes; for some people it's the opposite, and independent hubs of research are sprouting up in much less limited settings. And that is the point: at TL 8, each individual now has the capability of approaching their own endless education in a way that's most effective for them.

Likewise, each individual is becoming more and more able to approach their own employment in a way that's more effective for their own life, abilities, and situation. The entire company model is becoming less necessary and less useful, offering miniscule opportunities for growth and progress when compared with the emerging TL 8 model. And what is that model?

The phrase I like to use for TL 8 employment is "Niche Collaborations." For example, suppose Gwen and Phil get an idea for a new product or service of some kind. In TL 7, they'd need a whole company to produce, market, and distribute their product, and then even more departments to take care of the employees they'd need, and so on. They could try to start their own company to do all this, but that would be an enormous risk and would require a lot of money, so they'd have to qualify for a loan or find venture capitalists willing to invest in their idea, just to get it rolling in the smallest way. So instead, Gwen and Phil would probably try to find an existing company that would agree to market and sell their product, in exchange for gaining ownership. In either case, if Gwen and Phil wanted to see their product or idea become a reality, they would need a company.

Not so in TL 8. Once again, suppose Gwen and Phil get an idea for a new product or service. Now, marketing is nearly free due to the free and easy communications available over the internet; sure, they could pay a web-based *company* to market for them, and that would still be much easier and cheaper than at TL 7, but such hybrid solutions tend to be much less useful (like 8-tracks or minidiscs). If Gwen and Phil are willing to learn (and the individualist focus of TL 8 means that individuals must learn, rather than expect others to do things for them), then they can market their idea practically for free.

What about distribution, or production? Those depend on the kind of product or idea that Gwen and Phil are selling, but TL 8 keeps producing more and more powerful ways for individuals in their own homes to produce things that only a larger company could make in the past. Whether it be powerful software or compact machines like 3D printers, an individual can now create things that a whole studio or manufacturing plant would have been needed for in TL 7. Sure, they can't come close to matching the quantity of output of a whole TL 7 company, but they have much lower costs and get to keep all the profits themselves.

But how can they possibly compete with the publicity of big companies? This is where the "niche" part of Niche Collaborations comes in. With TL 8's communication explosion, people from all over the world can get together to enjoy small, niche interests...which often turn out to be not so small when everyone gets together! And others who share their niche interest can create products geared specifically toward them. In TL 7, there would have been no way to feasibly market anything to specific, niche interests of a few thousand people scattered across the globe, but now with the internet it's suddenly easy.

And there are a lot of niches. Large TL 7 companies have to shoot for the crowd, for the average or less, and can't possibly begin to adapt to the sheer variety of different little interests among individuals. This means that there are a *ton* of niches in the world, niches where an enterprising Gwen and Phil can give people exactly what they're already hungry for. We have a vast, open land of opportunity stretching before us, just waiting to be settled; only this time, it's digital. The world's becoming a huge digital city with billions of inhabitants, and not nearly enough online services and products to satisfy their interests.

TL 8 also changes the relationship between "customer" and "provider." While in TL 6, advertising had to be aggressive to the point of crazy exaggeration just to get people's attention enough to buy, and while in TL 7 advertising was invasive and loud for the same purpose, in TL 8 such annoying, antagonistic methods stop being necessary. Pop-up ads and other obnoxious attempts at selling things are just the same old TL 7 advertising methods shoved onto the internet. But in TL 8, people can connect on a far more personal level, and even larger-scale ads are geared toward specific niches of interest like never before. Those who seek to market an idea or product to a particular niche can afford to do it personally, respectfully,

and sell for a much lower price than would have been possible before.

So many of you have mentioned really awesome ideas, some on a very large scale! But you almost always also mention your discouragement. Many of you have been told that your ideas are impractical, by people who still hold to the less effective TL 7 model of large companies. Some of you feel like you'll never be able to see your ideas become real without somehow earning the interest of venture capitalists or existing companies. You've been told that the TL 7 model (which is really only 70 or so years old) is the way things have always been, and so will always be, and your ideas are just fanciful pipe dreams.

And a lot of you love to write, but you've been taught that you need a publisher (a big company) to get your work into bookstores (another big company) if you ever want it to be read on any large scale (and what was it again that killed Borders Books?). But as big companies, publishers are more interested in the safe bet, in middle-of-the-road averages that they can depend on selling well; their real interest is making a profit, and books are just the tool they happen to use to get there. But what choice do you have?

I actually got published once (not self-published, a real publisher), but I did have to kinda cheat to get there. I finished my final draft in September (ten years to the day before Phase 2 launched, in fact), so it was the last quarter of the year. So as I started querying agents and publishing houses, I kept getting a similar response: "Thanks, but we're full up for the year, try contacting us again next year." One publisher gave me numbers, something along the lines of, "We get 200-300 submissions per week, and we publish 3-4 titles a year, and we've already chosen this year's." And that was a smaller publishing house! In a market so saturated, what would it take for me to even get noticed?

Well, as often happens, it helps to know someone, and it turns out I did. So I cheated. I contacted an old friend who owned a tiny publishing company, and he took me on and set about getting my book into stores. And yet, something was just not right about all this. When a market is saturated, that's usually a good sign that it's reaching the stagnant end of its life cycle, and it's ready to be replaced by the next quantum of change. So what was it?

I turned to the internet, and told my friend not to worry about trying to get my work onto booklists. In retrospect I'm very glad, because the book could certainly use a rewrite! (Yeah, please don't try to find it; I'd much rather give you the newer version for free!) I started a long and difficult learning process of seeing how the old models weren't working so well anymore, and finding what did.

Which brings us to the other part of Niche Collaborations: collaboration. It's fantastic that TL 8 allows individuals to market to the needs and desires of such diverse groups, but the most successful examples happen when a few people with different skills and insights all band together to create something truly amazing, something that a whole company would have been needed for in the past. I had tried to go it alone, and I just did not have enough skills or understanding to get anywhere. This happens all the time in TL 8: individuals get a great idea, and they realize that they have the tools necessary to produce it themselves, and so they invest tons of time and effort and love...but it's just hard to get off the ground, because they're trying to do it on their own.

But when we instead collaborate with others whose gifts and ideas complement our own, then that actually brings out the unique power of each individual even more! When we share our ideas with others who have a similar passion, we're able to accomplish far more than any of us could on our own.

On Phase 1 we did a post on the webseries "Marble Hornets," which is a fantastic example of a niche collaboration. One guy, Troy, failed to get hired at Panera Bread (trying to get a job at a company via the TL 7 model), and so said to his buddy, "Hey Joseph, wanna make a thing for the internet?" Troy and Joseph were soon joined by other amateur friends, and now several years later, "Marble Hornets" has completed its three-season story arc to critical acclaim, it's been distributed on DVD along with commentaries and featurettes, and it's launched an ongoing comedy channel and a new horror webseries. This is their job, doing what they love, and it would have been utterly impossible in the past.

The daily internet show "Good Mythical Morning" is another example of a couple of friends starting with something small, which over the years grew into a full-time career that they joke can't last. They collaborate with a whole crew of people who do things they can't, and they seem to be only picking up speed.

With today's software, niche collaborations create special effects that would have required an entire studio in TL 7. "The Greater Good" is a fanmade short of a tremendous duel between young Dumbledore and Grindelwald, and after its success two years ago, its creators have gained more collaborators and are now making a new film "Severus Snape and the Marauders."

Okay, I know I keep giving video examples, but they're what's coming to mind, and they're fun! And they're impressive displays of what niche collaborations can accomplish. So "Star Wars Revisited" is an amazing example of a small group of amateurs making all of Lucasfilm look amateurish. Dubbed "What the Special Editions should have been," Revisited

polishes up the original films while removing the worst of Lucas's jarringly bad CGI insertions, improves coloring, lighting, and resolution in every frame, but on top of all that, they asked the internet to submit every mistake, continuity error, or little annoyance they've ever found in Star Wars...and they're fixing them all. Han wearing a different shirt before and after the carbonite? They'll fix it. Obi-wan and Vader fighting like slugs with pale lightsabers in Episode IV? They'll fix it, and modify the score to tie it in better with the rest of the story. That one badly done hairy arm that wasn't hairy before it got chopped off? Yeah...fixed.

In short, niche collaborations can do now what only large companies could do in the TL 7 model. I want to start a thread about sharing niche collaborations we like, and more importantly about talking about any ideas you guys have for things you'd love to accomplish. Endeavors that would certainly be impractical pipe dreams under a TL 7 model might be surprisingly feasible now.

In every TL change, lower LLs tend to resist the new methods, often without even realizing they're there. TL 8 is all about individual capacity, ability, and responsibility. You can take the reins of what you want to contribute to the world. So we hope you'll feel safe sharing your ideas here, and just see what comes from that!